



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
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November 6, 2013

To: Interested Parties

From: Josh Gruber, Fish Biologist, Red Bluff Fish and Wildlife Office

Subject: Biweekly report (October 22, 2013 - November 4, 2013)

Please find attached preliminary daily estimates of passage, 90% confidence intervals, and fork length ranges of juvenile salmonids sampled at Red Bluff Diversion Dam for the period October 22, 2013 through November 4, 2013. Race designation was assigned using length-at-date criteria.

**Passage estimates for October 1 through October 17, 2013 (federal government shutdown period) have now been generated and added to the brood-year totals and confidence intervals. Daily passage for this un-sampled period was interpolated using a monthly mean daily passage estimate calculated from data collected October 18 through October 31, 2013.**

This report also contains graphical displays of salmonid passage dating back to 2006 for comparison.

Please note that data contained in these reports is subject to revision as this data is preliminary and undergoing QA/QC procedures.

If you have any questions, please feel free to contact me at (530) 527-3043 ext 233.

Table 1.— Preliminary estimates of passage by brood-year (BY) and run for unmarked juvenile Chinook salmon and steelhead trout captured by rotary-screw traps at Red Bluff Diversion Dam (RK391), Sacramento River, CA, for the dates listed below. Results include estimated passage, peak river discharge volume, water temperature, turbidity, and fork length (mm) range in parentheses. A dash (-) indicates that sampling was not conducted on that date.

Date	Discharge volume (cfs) <sup>1</sup>	Water temperature (°C)	Water turbidity (NTU)	Estimated passage				
				BY13 Winter	BY13 Spring	BY12 Fall	BY13 Late-Fall	BY13 RBT
10/22/2013	7,320	13.9	1.6	16,365 (35 – 70)	1,499 (32 – 34)	31 (130)	919 (71 – 123)	30 (78)
10/23/2013	7,090	13.8	1.8	23,556 (36 – 70)	3,421 (30 – 35)	304 (130 – 140)	1,348 (71 – 122)	60 (65 – 139)
10/24/2013	7,090	13.6	1.8	20,880 (36 – 71)	2,905 (31 – 35)	203 (141 – 146)	1,888 (72 – 127)	38 (96)
10/25/2013	7,180	13.6	1.4	18,206 (36 – 71)	3,044 (31 – 35)	39 (151)	819 (72 – 126)	79 (54 – 69)
10/26/2013	7,220	13.4	1.6	18,974 (36 – 72)	3,644 (31 – 35)	39 (147)	711 (73 – 130)	39 (86)
10/27/2013	7,200	13.3	1.7	14,212 (37 – 71)	4,162 (31 – 36)	118 (140 – 147)	1,181 (73 – 130)	39 (63)
10/28/2013	7,170	13.1	1.7	19,734 (37 – 72)	3,658 (30 – 36)	0 (–)	1,285 (74 – 130)	121 (86 – 173)
10/29/2013	7,150	12.9	1.4	6,010 (37 – 73)	1,015 (33 – 36)	0 (–)	393 (78 – 117)	39 (96)
10/30/2013	7,170	12.9	1.6	11,171 (37 – 73)	1,816 (33 – 36)	0 (–)	886 (75 – 133)	32 (74)
10/31/2013	7,200	12.9	1.5	11,208 (38 – 74)	1,853 (29 – 37)	64 (139 – 148)	1,116 (75 – 133)	32 (79)
11/1/2013	7,240	13.2	1.7	10,202 (38 – 74)	2,654 (30 – 37)	97 (136 – 138)	950 (76 – 132)	0 (–)
11/2/2013	7,110	12.8	1.4	9,388 (38 – 74)	2,192 (30 – 37)	0 (–)	710 (76 – 135)	93 (74 – 96)
11/3/2013	6,830	11.8	–	–	–	–	–	–
11/4/2013	6,610	11.1	1.8	13,520 (39 – 76)	1,779 (32 – 38)	60 (141 – 155)	1,118 (77 – 133)	59 (84 – 85)
<b>Biweekly Total<sup>2</sup></b>				<b>203,676</b>	<b>35,527</b>	<b>992</b>	<b>14,186</b>	<b>704</b>
<i>Biweekly Lower 90% Confidence Interval</i>				161,992	27,464	430	10,625	241
<i>Biweekly Upper 90% Confidence Interval</i>				245,359	43,590	1,553	17,747	1,166
<b>Brood Year Total</b>				<b>840,439</b>	<b>45,943</b>	<b>24,080,810</b>	<b>59,952</b>	<b>162,870</b>
<i>Brood year Lower 90% Confidence Interval</i>				642,136	33,022	16,803,566	31,519	91,646
<i>Brood year Upper 90% Confidence Interval</i>				1,038,742	58,864	31,358,053	88,385	234,094

<sup>1</sup> Peak daily discharge values do not account for diversions at RBDD and only represent peak flows registered at the Bend Bridge Gauging station (<http://cdec2.water.ca.gov/cgi-progs/queryFx?bnd>).

<sup>2</sup> Biweekly totals may be greater than the sum of the daily estimates presented in this table if sampling was not conducted on each day of the biweekly period. A dash (-) denotes those dates. To estimate daily passage for days that were not sampled, we impute missed sample days with the weekly mean value of days sampled within the week.

## Juvenile Winter Chinook Salmon Estimated Passage

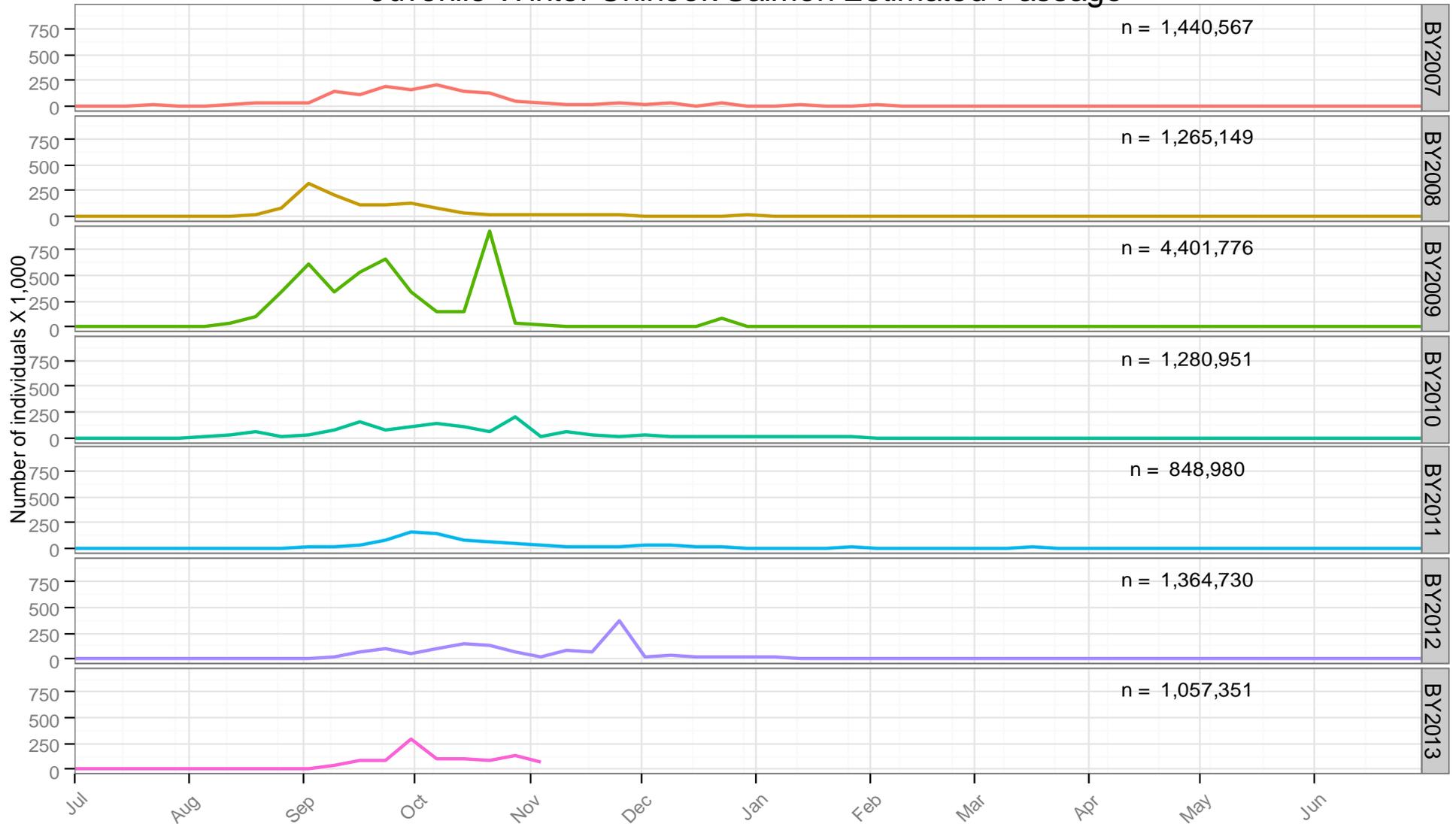


Figure 1. Weekly estimated passage of juvenile winter Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period July 1 2007 to present .

## Juvenile Spring Chinook Salmon Estimated Passage

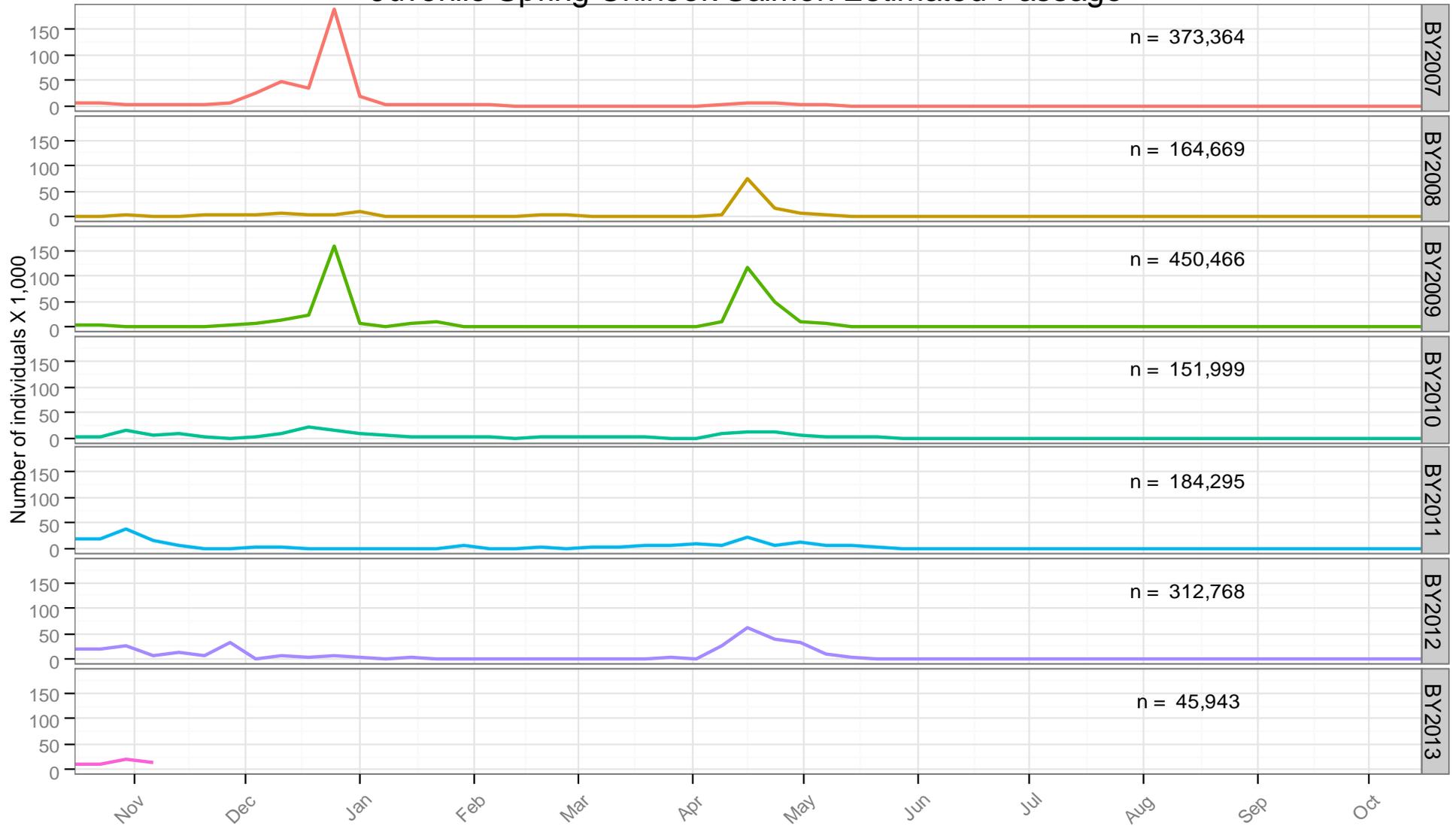


Figure 2. Weekly estimated passage of juvenile Spring Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period October 16 2007 to present .

## Juvenile *Onchorhynchus mykiss* Estimated Passage

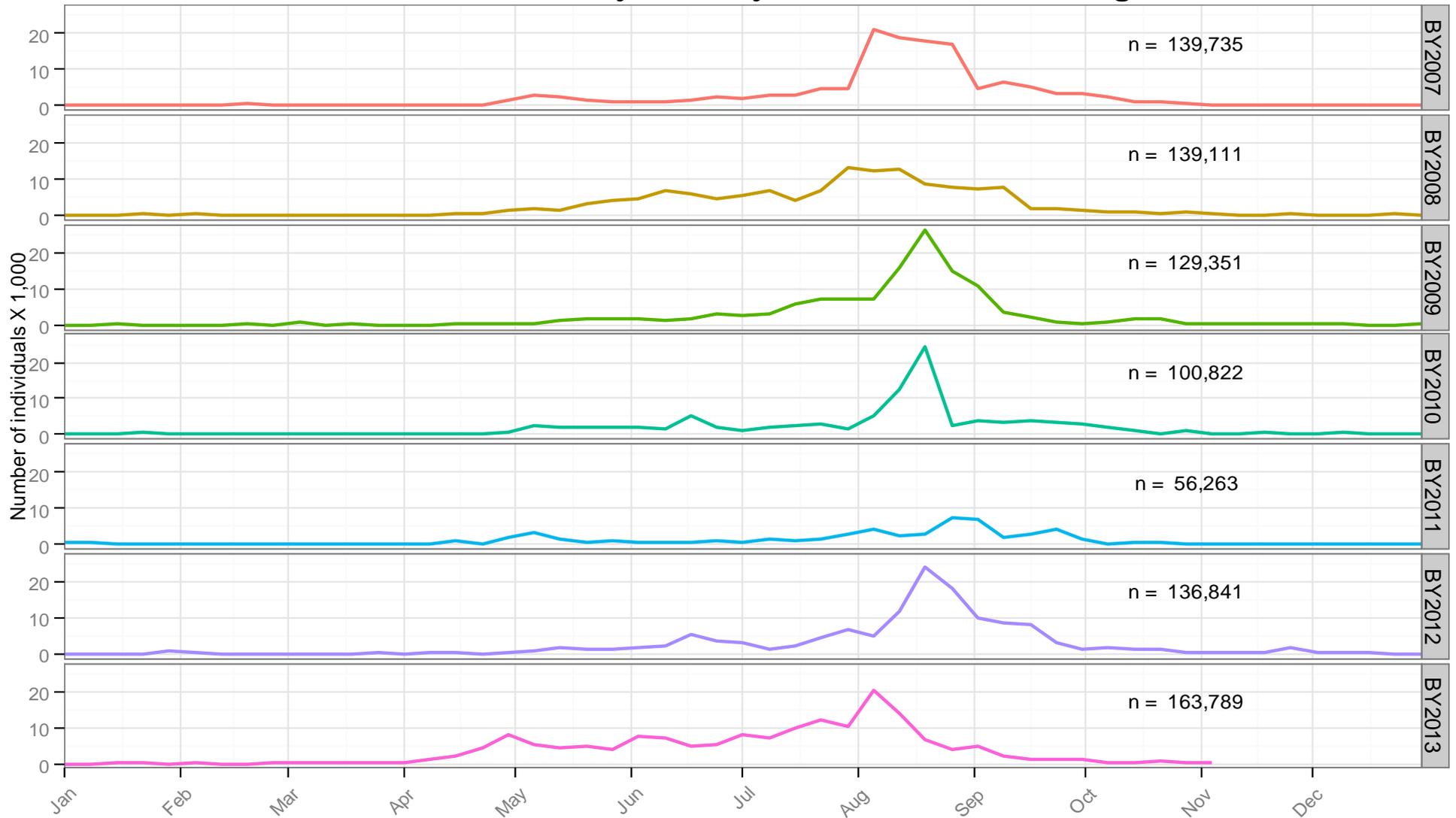


Figure 3. Weekly estimated passage of juvenile Rainbow/Steelhead trout at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period January 1 2007 to present .

## Juvenile Fall Chinook Salmon Estimated Passage

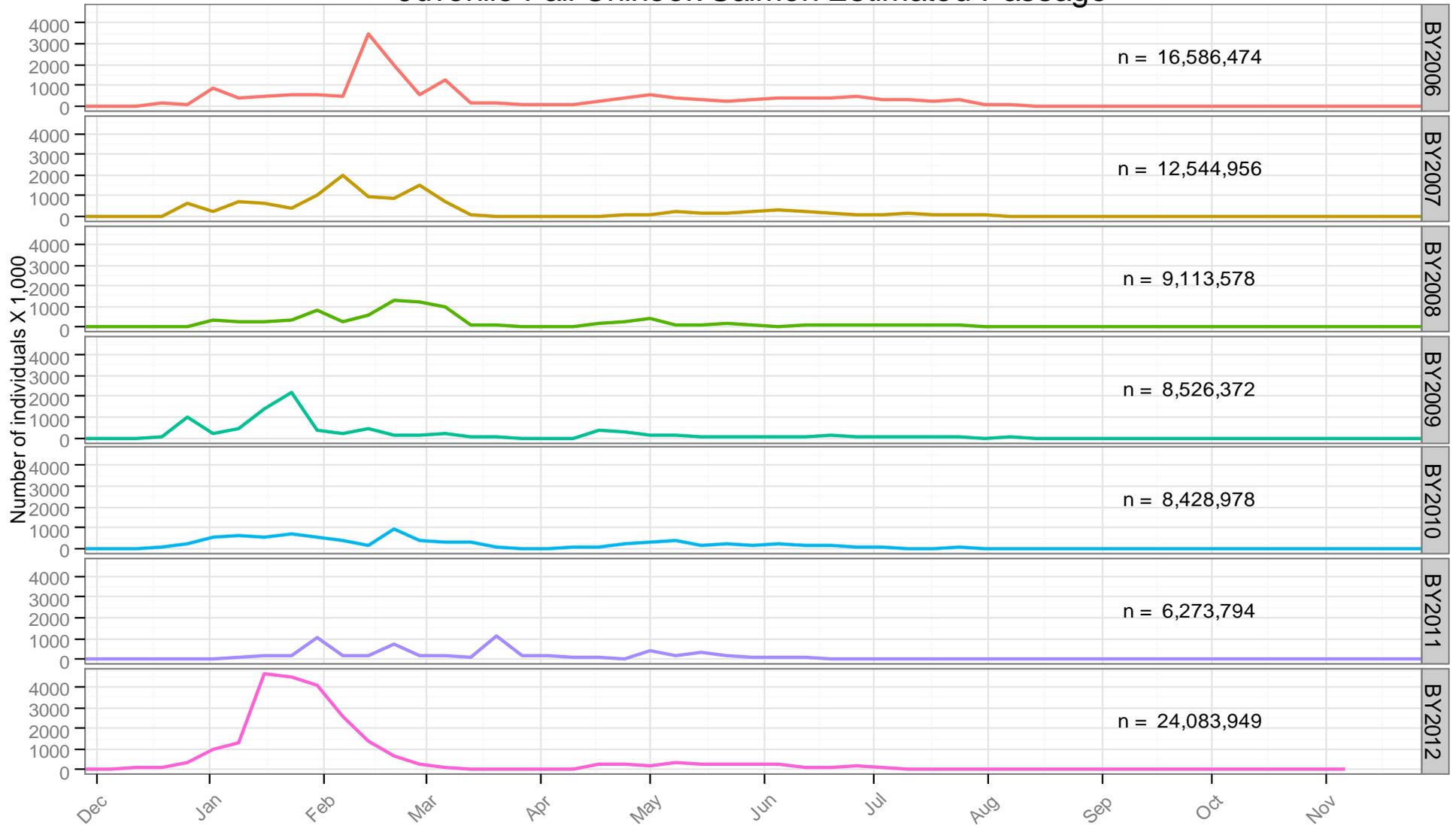


Figure 4. Weekly estimated passage of juvenile Fall Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period December 1 2006 to present .

## Juvenile Late Fall Chinook Salmon Estimated Passage

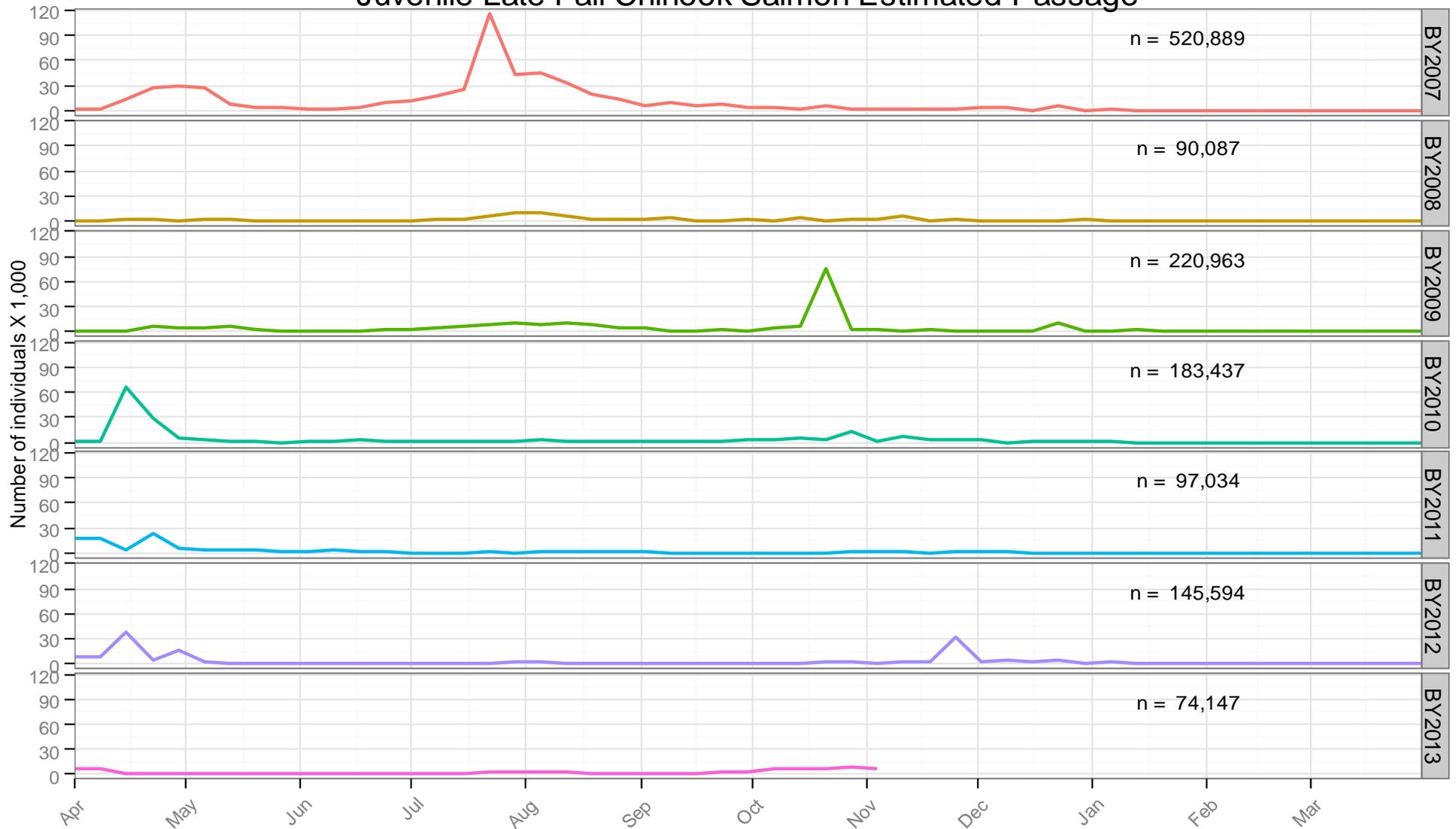


Figure 5. Weekly estimated passage of juvenile Late Fall Chinook Salmon at Red Bluff Diversion Dam (RK391), by brood-year (BY). Fish were sampled using rotary-screw traps for the period April 1 2007 to present .

# Weekly Estimated Chinook Passage at Red Bluff Diversion Dam - All Runs Combined

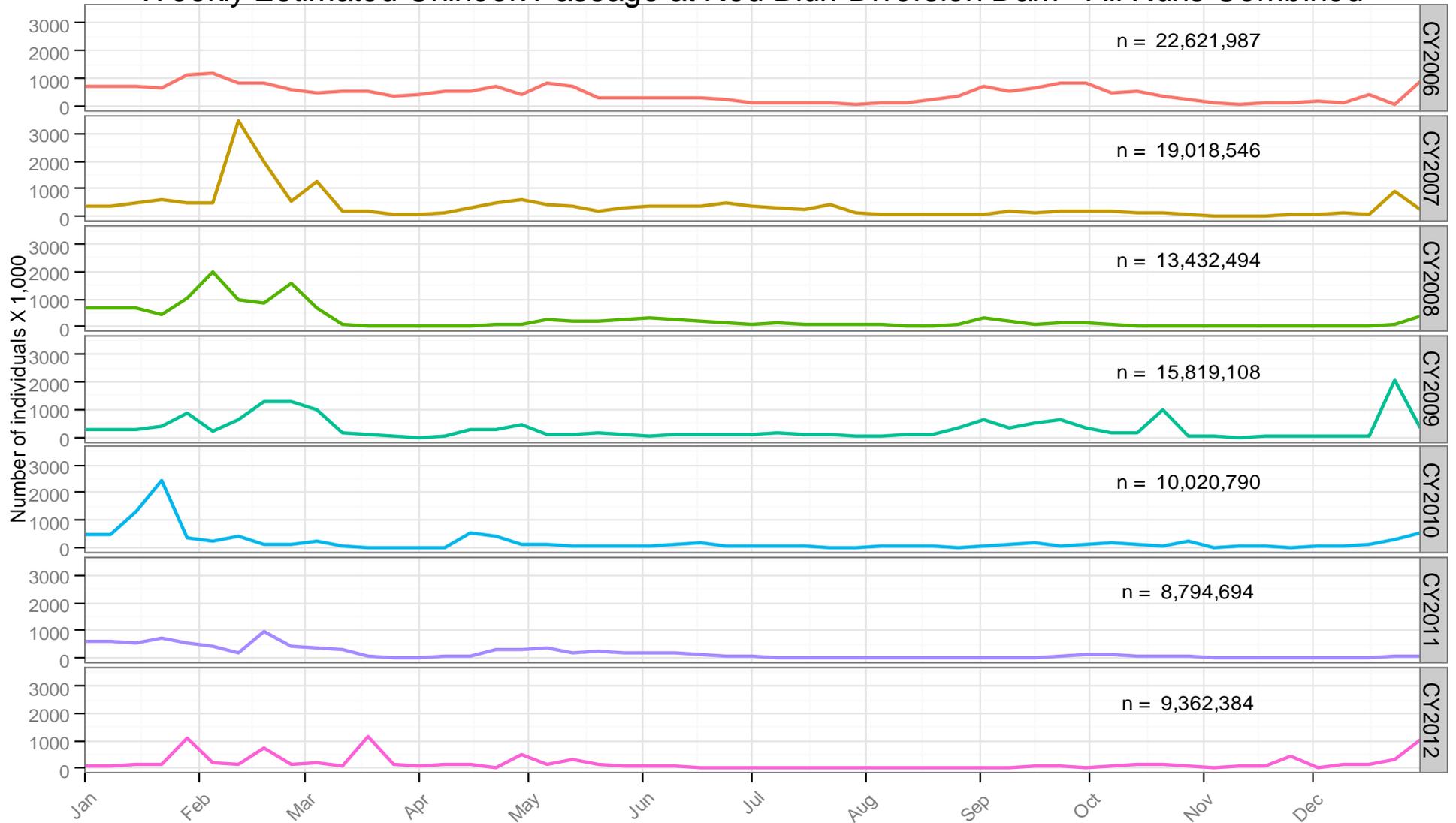


Figure 6. Weekly estimated passage of juvenile Chinook Salmon at Red Bluff Diversion Dam (RK391), by calendar year. Fish were sampled using rotary-screw traps for the period January 1 2006 to December 31 2012